PROJECT REPORT

Implementation of B-Tree in Java Programming

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APPROVAL and RATIFICATION PAGE

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STATEMENT of ORIGINALITY

Hereby signed :

Name : Romy Budiansyah

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Here by certify that this project was made by my self and not copy or plagiarizes from other people, except that in writing expressed to the other article.

If it is proven that this project was plagiarizes or copy the other, I'm ready to accept a sanction.

Semarang,

Romy Budiansyah

06.02.0082

FOREWORD

Thanks a lot of God because it has been able to be completed my final project, with title : Implementation of B-Tree in Java Programming. And in this opportunity, I would like to thanks :

- My Lord, that give me power to finish this project.
- My Lovely sister, Uci Novirudiana for her support and pray.
- My parents and my big family for their support, love, and pray.
- Suyanto EA., Ir, M.Sc, as my supervisor for helping, guiding and giving me ideas and advice in finishing this project.
- All the lecturers of Faculty of Computer Science for teaching me and give me knowledge while I'm studied in Faculty of Computer Science.
- All of my love friends which help and support me to finish this project, and also for people who have helped me in prayers and support.

Finally, I would like to apologize if the project is still many shortcomings. I look forward to suggestions and criticism.

Semarang,

Romy Budiansyah

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ABSTRACT

B-Tree is a tree data structure of the most common used in databases and filesystems, that keeps data sorted and balanced. The idea of B-Tree is an internal node can have a number of child nodes wihtin some pre-defined range. When data is inserted or removed from a node, its number of child nodes changes. In order to maintain the pre-defined range, the internal nodes may be joined or split. Because a range of child nodes is permitted, B-Tree does not need re-balancing as frequently as other self-balancing search tree. However, B-Tree may waste some space, since nodes are not entirely full. The lower and upper bounds on the number of child nodes are typically fixed for a paticular implementation.

B-Tree kept balanced by requiring that all leaf nodes at the same height. The height will increase slowly as elements are added to the tree, but an increase in the overall height or depth is infrequent. Because B-Tree is designed to have branches in large numbers and contains a number of keys on each node so that relative tree height small. By maximizing the number of child nodes within each internal node, the height of tree decreases, balancing occursless than often, and efficiency increases.

Keywords : B-Tree, data structure, node, self-balancing search tree

Table of Content

Table of Figure

Table of Table